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# SPATIAL ANALYSIS OF PLEASURE VISITOR ACTIVITY PATTERNS WITHIN COASTAL ZONE COMMUNITIES

by

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Dr. Mark J. Okrant, Associate Professor of Geography  
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Preface

The following research has been funded by a National Oceanic and Atmospheric Administration Demonstration Grant (UNH Subcontract #83-11). As a demonstration project, the research explores the viability of utilizing a spatial perspective to examine visitor activity patterns (i.e., movements of "pleasure visitors"<sup>1</sup>) within a predetermined portion of the coastal zone. The study area examined by the research consists of the towns of Portsmouth and Rye, New Hampshire.

The following methodological problems will be explored by the research:

- 1) can a representative sample of pleasure visitors be obtained by deploying field workers at positions adjacent to major visitor attractions situated within a study area?
- 2) can a research methodology be developed which will be both affordable and easily utilized by officials at the local level?
- 3) will the spatial approach produce information which has value to public and private agencies engaged in pleasure travel planning or marketing efforts?
- 4) what is the potential utility of employing sophisticated geographical techniques to conduct community-level pleasure visitor analysis?

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<sup>1</sup> a "pleasure visitor" is defined as a person who travels beyond the boundaries of his/her place of residence primarily to engage in activities other than those required for existence or economic subsistence. Place to place movement for any of these purposes shall be referred to as "pleasure travel" or "pleasure visits" within the body of this research. These activities most often shall be comprised of (but are not limited to) one or more of the following--participation-oriented and spectator-oriented sports and games, relaxation, exposure to different elements of a culture or the environment, and social interaction.

## Introduction

Each year, millions of people travel from their places of residence during periods of leisure to partake in a variety of services, facilities and activities. Pleasure travel varies in length from a few hours to a period exceeding several months. Whatever its duration, such activity is an important economic resource for numerous New England coastal communities, particularly during the Summer season.

According to Gunn, pleasure travel can be categorized as "destination-oriented" or "touring-oriented."<sup>2</sup> Numerous New England coastal communities serve both categories of travel. Destination-oriented travel often produces visits having a duration of one week or longer within a single locality. During this type of pleasure travel, visitors commonly will rely upon the host community to provide most of their food, lodging and entertainment. Therefore, destination-oriented pleasure travel contributes substantially to local revenue. At the same time, the demands upon local facilities and services can be considerable.

Touring-oriented travelers, as the name suggests, are motivated to visit two or more destinations, while expending a substantial proportion of their time and resources in transit between destinations. Touring-oriented visitors can be categorized into three groups--1) the "overnighter," 2) the "daytripper" and 3) the "transient."

The overnighiter makes use of many of the same services and facilities as those utilized by the destination-oriented traveler. The most obvious distinction between these two groups is their respective lengths of stay.

The daytripper generally makes fewer demands upon the local suprastructure. He/she visits one or more local attractions and/or shopping facilities, and

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<sup>2</sup>Clare A. Gunn, Tourism Planning (New York: Crane Russak, 1979).

may eat one-to-three meals within the community prior to departing.

The transient varies from the aforementioned types of visitors, for he/she has planned neither an overnight stay nor a visit to any attraction situated within the community. As the name suggests, this type of visitor is in transit between two nodes. The community generally will provide a quick service (e.g. gasoline, information, snack foods, etc.). However, circumstances (i.e., impulse) may produce a visit involving greater length and commitment of time and resources than originally planned.

Most communities which serve touring-oriented travel share a single attribute--proximity to one or more arterials. Those communities which offer efficient travel services and relative "transferability"<sup>3</sup> will be most attractive to this category of visitor.<sup>4</sup>

#### Methodology

The study uses primary data obtained by means of personal interviews conducted within the study area--the communities of Portsmouth and Rye, New Hampshire--on two weekdays and two weekend days during the second week of July, 1983. This period was selected after consultation with local officials, who reported this to be a rather "typical" mid-season (Summer) week; i.e., there was an absence of major promotional activity which might heavily bias the sample obtained.

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<sup>3</sup>Transferability is defined as the ease of movement between two places along lines of transportation and communication. Measures of transferability include travel costs, time and quality of the infrastructure (ex., interstate highway vs. country road.)

<sup>4</sup>There is some question about the benefit/cost relationship of attracting the touring-oriented traveler. One may argue that this individual makes demands upon a variety of facilities and services while contributing relatively little to local revenue. The counter-claim is that these visitors utilize similar elements of the suprastructure and infrastructure as those used by destination-travelers, while contributing to local revenue.

The research has been designed to examine the impact of Summer season pleasure visits within the study area, employing a spatial perspective. Interviews were conducted at collection points situated adjacent to nine important visitor attractions within the study area.<sup>5</sup> A decision was made to gather data at locations within the study area, rather than to employ the more traditional approach of interviewing people at major entry and exit points. The latter approach was rejected for the following reasons:

- 1) the purpose of the research is to examine the activity patterns of a representative sample of visitors to the study area. Therefore, given available resources, it was determined that interviews conducted at points adjacent to major attractions would be a more feasible means to generate the requisite number of responses than a random survey conducted at exit ramps.
- 2) Because respondents are required to provide details about their visits, roadside interviews are impractical. A survey taker's axiom is that people who are stopped along major arterials are notoriously uncooperative participants. In addition, lengthy roadside interviews constitute a potential threat to the safety of drivers, passengers and field workers alike.

Data were collected by a team of student field workers who interviewed a total of 450 persons, during a four-day period totaling 120 field-hours. Interviewers were trained by the project director with instructions to obtain considerable detail regarding the types, duration, and locations of all activities (lodging, eating, recreation, etc.) within the study area. Incentive to participate was provided in the form of an opportunity for respondents to win a free weekend trip to the study area.

Based upon periodic interviewer reinforcement sessions conducted in the field, it was determined that two percent of all potential interviewees were uncooperative. These people can be categorized as a) persons under temporal constraints, b) disinterested persons and c) year-round residents of the study area (ineligible by definition). In addition, thirteen surveys were not used, as

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<sup>5</sup>These nine study areas were identified with the aid of state and local officials (public and private sectors).

they were judged, by the project director, to be lacking requisite detail.

### The Study Area

The towns of Portsmouth and Rye, New Hampshire were selected as the study area because of their geographical contiguity as well as their contrasting population and functional characteristics. Portsmouth, a city of 26,254 people,<sup>6</sup> has a rich maritime heritage which dates to the early seventeenth century. By 1700, the city was a thriving port and marketplace. A major shipbuilding center, the city's warships played an important role in the colonies' struggle for independence. Shipbuilding and shipping continued to be the city's dominant economic activities for more than a century afterward. However, by the late 1800's, Portsmouth had become a railroading and industrial center. During World War I and II, the city grew rapidly, as its shipbuilding function flourished.

In recent decades, the city has undergone considerable metamorphosis. The allurements of historic houses (e.g. Strawberry Banke), theatric and artistic activities, downtown redevelopment, plus numerous restaurants and specialty shops has drawn thousands of visitors into the city. According to available estimates, Portsmouth's pleasure visitor activity is expanding each season.<sup>7</sup>

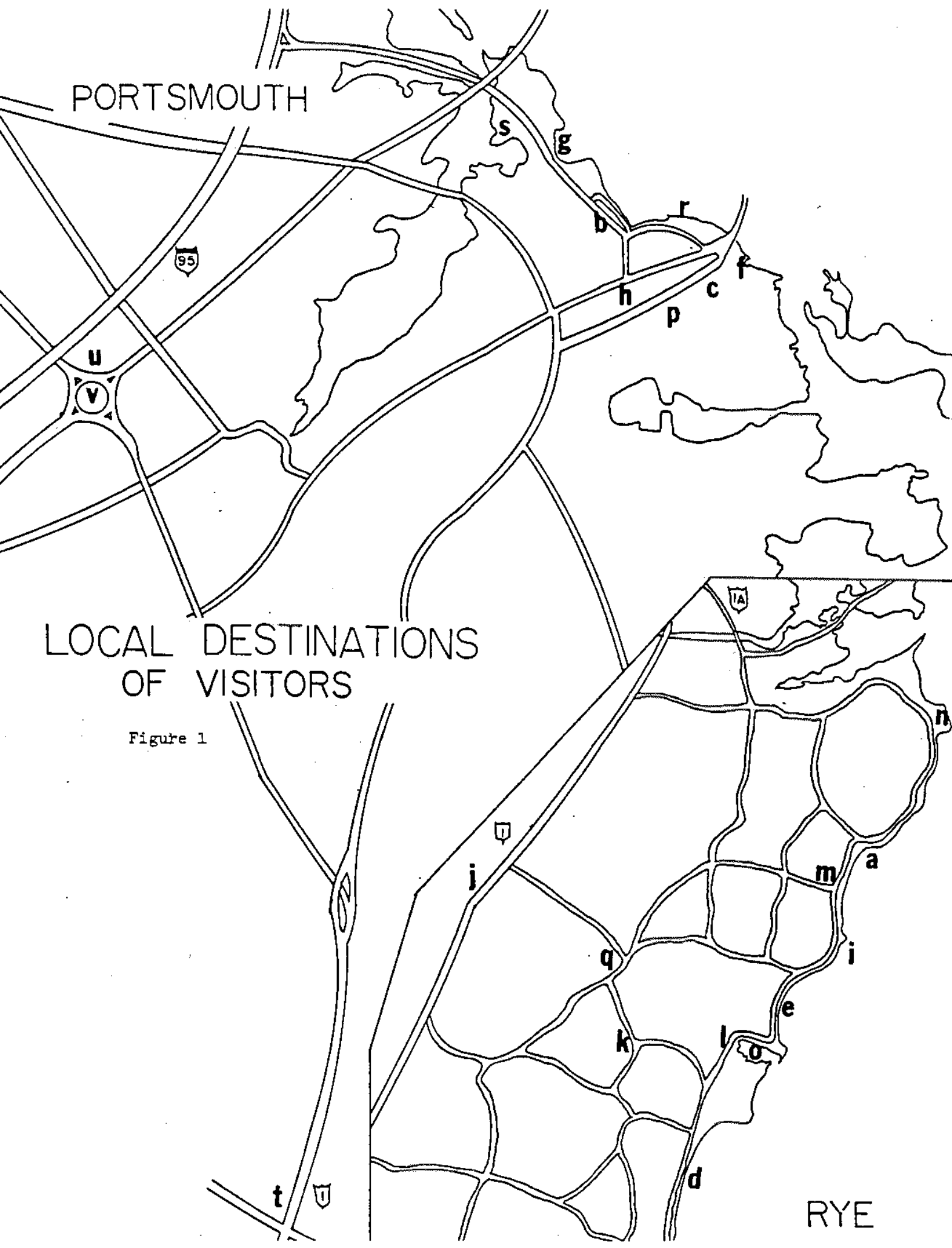
Two limits to further development of visitor activity are immediately apparent. These are a shortage of lodgings and limited parking facilities adjacent to primary attractions. Within Portsmouth, most of the primary attractions are situated in the downtown area, while the majority of the hotels and motels are to be found along Route 1 and adjacent to the area known as "the traffic circle" (see Figure 1).

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<sup>6</sup>"General Population Characteristics--New Hampshire," 1980 Census of Population Vol. 1, Chap. B, part 31 (Washington: U. S. Department of Commerce, Bureau of Census, 1980).

<sup>7</sup>J. Dennis Robinson, "Portsmouth: Looking Toward the Piscataqua Again," The Gateway to the Atlantic (January 25, 1984).







Local Destinations of Visitors  
Legend - Figure 1

- a. Wallis Sands State Park
- b,h,p. Downtown Portsmouth locations
- c. Strawberry Banke
- d. Jenness Beach Auto Park
- e,i. Seacoast of Rye
- f. Prescott Park
- g. Viking Cruise
- j. Route 1, Portsmouth/Rye
- k. Rye non-beach unspecified
- l. Rye Harbor State Park
- m. Pirate's Cove Restaurant
- n. Odiorne State Park
- o. Rye Harbor-Marina area
- q. Rye Center
- r. Portsmouth waterfront
- s. Chamber of Commerce
- t. Yoken's Restaurant
- u. State Liquor Store
- v. Traffic circle location

Rye is a scenic community of 4,508 people (1980 census). Like Portsmouth, Rye received its first European settlers during the early years of the seventeenth century. Until the end of the century, social and economic activity in this area remained tied closely to Portsmouth. It was not until the second quarter of the eighteenth century that Rye was recognized as a separate political entity, joining Rockingham County in 1769. Following the Revolutionary War, the leading occupation within the town was farming. The local marshes and wetlands were cleared and used for salt hay and potatoes.

During the early years of the nineteenth century, people of "fashion" came from the cities, initially by boat and later by rail, to enjoy Rye's beaches. With the development of the Boston and Maine Railroad in 1844, the town's "tourism" function began to evolve. At first, local residents were persuaded to take in summer boarders; however, as has been observed in most other areas possessing attractive natural attributes, the development of large hotels soon followed the arrival of rail-borne visitors.<sup>8</sup>

With the onset of the Civil War, fishing became the dominant form of economic activity in the area. However, the period between 1865 and the Great Depression became known as Rye's "Golden Era," as the hotel business thrived. During the Depression, most of these hotels, including the famous Farragut Hotel, were destroyed by fire. Although the Farragut was rebuilt, the hotel business gradually was superseded by the opulent summer cottages of the wealthy.

During the early years of the twentieth century, Rye benefitted from the development of two transportation innovations. The first of these, an electric street car line which connected Portsmouth and Hampton, brought numerous visitors

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<sup>8</sup>About Rye, New Hampshire, Frances Holway, ed. (Rye: Rye Bicentennial Committee, 1976).

to Rye. Also during 1900, the state began construction of a boulevard which would provide the general public with free automobile access to the beach area.

Today, the town has little industry. It is functionally dependent upon Portsmouth and other neighboring towns, relying upon these large centers for jobs while serving them as a rural life center (i.e. bedroom community). During the summer months, pleasure travel is an important activity. State parks at Odiorne Point, Wallis Sands, Rye Harbor and Jenness Beach attract thousands of visitors annually.<sup>9</sup> These areas provide a variety of public bathing, boating and picnicking facilities. Most of the commercial enterprises--several motels, cottage colonies, restaurants and gift shops--are situated along Ocean Boulevard (Route 1A) and Lafayette Road (Route 1).

Summary. Portsmouth is a thriving employment center in which pleasure travel is a growing phenomenon. Unlike Rye, Portsmouth's primary pleasure visitor activities do not appear to be functionally dependent upon the community's location relative to the coastal zone. Certainly, opportunities to visit historic sites, to dine out and to shop (i.e., "cultural"<sup>10</sup> activities) are available within communities situated outside of the coastal zone. In contrast, the majority of Rye's primary pleasure travel activities--swimming, sunbathing, sport fishing and boating--are by-products of the community's coastal zone location. Therefore, Rye's geographical situation contributes substantially to its status as a visitor destination.

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<sup>9</sup>Calendar Attendance--Seven Year Comparison (Concord: Division of Parks and Recreation, Department of Resources and Economic Development, 1983).

<sup>10</sup>Gunn.

### Research Problem

With the aforementioned functional characteristics in mind, the research has been designed to evaluate the effectiveness of the spatial approach in examining visitor dynamics within, as well as between, the two coastal zone communities. Utilizing the methodology described above (see "Methodology"), the study will employ very basic forms of cartographic and quantitative analyses to observe, compare and contrast the following:

- a) market areas--the origins of visitors (i.e., respondents) to the respective communities will be mapped. Patterns will be examined to determine the geographical extent of the pleasure visitor market areas (nodal regions) of Portsmouth and Rye. Patterns will be compared and contrasted in an effort to evaluate observed ranges and patterns.
- b) specific destinations visited within the study area--the study will endeavor to determine the presence or absence of spatial interaction--i.e., sharing of visitors--between the two communities. Utilizing a series of maps depicting visits to specific attractions, the research will examine whether respondents who visit one attraction exhibit a tendency to visit one or more other specific attractions, facilities or services.
- c) the study will endeavor to determine whether any places situated beyond the boundaries of the study area are frequent destinations of respondents. The primary purpose of this effort will be to determine whether respondents exhibit a coastal zone orientation throughout their travel experiences.

### Research Hypotheses

The following hypotheses will be evaluated:

- Hypothesis 1: Due to the contiguity of the two communities, the Portsmouth and Rye pleasure visitor market areas will exhibit a high degree of spatial similarity (areal association).
- Hypothesis 2: Due to the contiguity of the two communities, a substantial level of pleasure-functional spatial interrelationship will be observed. In other words, a minimum of 20 percent of the visitors to Portsmouth will also visit Rye, and vice versa.
- Hypothesis 3: The majority (greater than 50 percent) of all pleasure visitor activity will tend to be clustered. In other words, visitors will exhibit a strong tendency to visit attractions which are situated in the immediate geographical vicinity of one another. (Note: the research will attempt to determine

the spatial extent of pleasure visitor activities within the study area. In other words, it will examine whether facilities and services situated remote from primary visitor attractions will benefit directly from visitor interactions, or mainly from revenues generated by visitor spending at primary attractions within the community.

Hypothesis 4: A majority (i.e., greater than 50 percent) of all respondents who engage in activities outside of the study area will be attracted to destinations which are contiguous to (i.e., situated within 10 miles of) the littoral zone.

#### Visitor Characteristics

The study sampled 438 individual parties of pleasure visitors. The mean group size was 3.1 persons; however, two-person parties were the mode. Therefore, small travel parties appear to have been predominant during the study period.

Females comprised a slight majority of responding party members (53.9 percent). As Table 1 indicates, the study area apparently is popular among a cross-section of age-groups.

Table 1

Age-Sex Characteristics of Respondents  
(figures are percentages)

	18	18-29	30-44	45-64	65+	Total
Males	22.4	16.5	23.3	24.0	13.8	46.1
Females	19.9	16.4	23.8	25.2	14.6	53.9
Percent of Total	21.1	16.4	23.6	24.6	14.3	100.0

The Portsmouth-Rye area appears to attract summer visitors who are comparatively comfortable financially.<sup>11</sup> More than sixty (60.1) percent of all respondents reported annual household incomes in excess of \$25,000 (before taxes); nearly twenty (19.5) percent reported household earnings of more than \$50,000 during the last year. A comparatively small proportion (16.8 percent) of

<sup>11</sup>These figures are very similar to data gathered throughout New Hampshire during the Summer 1983 season. See Mark J. Okrant, The New Hampshire Travel Survey--Summer Season Visitors (1984).

the sample reported incomes of less than \$15,000.

Travel to the study area primarily was characterized by day trip activity--either from permanent places of residence or from visitor destinations situated a short distance from the study area. Only 14.6 percent of the respondents indicated that they stayed overnight within the study area. Of these parties, 30.0 percent were accommodated by friends or relatives. Therefore, only 10.2 percent of the total sample utilized commercial lodging accommodations within the study area. The proportion of overnight visits is very low, as compared with the rate (71.8 percent) determined by the study of visitors to New Hampshire during the 1983 Summer season.<sup>12</sup>

Table 2 displays the proportion of all respondents who expended money for various purposes within the respective communities. The data indicate that the majority of respondents who visited Rye spent money within that community. However, this information warrants a closer examination.

Table 2 indicates that the most frequent expenditure by Rye's visitors was for recreation/entertainment. In nearly every instance these expenditures consisted of state park entrance fees of less than five dollars. Examined in combination with the comparatively high proportion of visitors who purchased groceries within Rye, this figure reflects Rye's popularity as a location for outdoor recreation--picnic outings at different locations along the town's shoreline.

Nearly sixty-six (65.9) percent of sampled parties who visited Portsmouth reported that they spent money within that community. Expenditures for restaurants, recreation and entertainment and personal expenditures were predominant (see Table 2). These figures--in combination with the comparatively low rate of lodging expenditures--betray the popularity of day trip excursions to Portsmouth to engage in sightseeing, dining and/or shopping activities.

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<sup>12</sup>Okrant

Table 2

Respondents' Expenditures  
(figures are percentages)

	Place	Lodging	Rest.	Groc.	Trans.	Rec/Ent.	Pers. Expen.	Total % of Spenders
(N=252)	Ports.	11.5	65.1	14.7	29.0	52.0	31.7	65.9
(N=229)	Rye	6.1	28.8	22.7	21.8	66.4	10.9	88.6

### Market Areas--Visitor Origins

The private automobile was respondents' primary mode of travel to and within the study area (91.0 percent). As figures 2 and 3 indicate, the major generators of respondents were New Hampshire (42.7 percent), Massachusetts (28.1 percent) and Maine (7.1 percent). The patterns suggest a strong dependence upon several neighboring towns (Rochester, Dover, Exeter and Hampton), as well as the large urban centers situated along Interstate 93 and the Everett Turnpike (Concord, Manchester and Nashua) to generate visitors to the study area. The northern and eastern portions of Massachusetts (Greater Boston, Lawrence, Lowell, etc.) and the Greater New York City area also appear to be important sources of pleasure visitors. Given the importance of the automobile as a visitor conveyance, it is not surprising that the aforementioned patterns reflect the orientation of the interstate highway system within New England and surrounding regions (the researcher refers specifically to I-95, I-93, I-91, I-90, and I-80).

Figures 4 through 7 provide an opportunity to compare and contrast the market areas of the two communities. While the maps clearly indicate that New England is the primary generator of visitors to both communities, there are contrasts in the two patterns. The Concord-Manchester-Nashua, Rochester-Dover-Exeter, and Lawrence-Lowell areas appear to be more important sources of pleasure visitors to Rye than Portsmouth. Rye also appears to draw large numbers of visitors from the Greater Boston and Greater Montreal area. These patterns



TOWN OF ORIGIN  
VISITORS TO PORTSMOUTH - RYE  
July 13, 14, 16 & 17, 1983

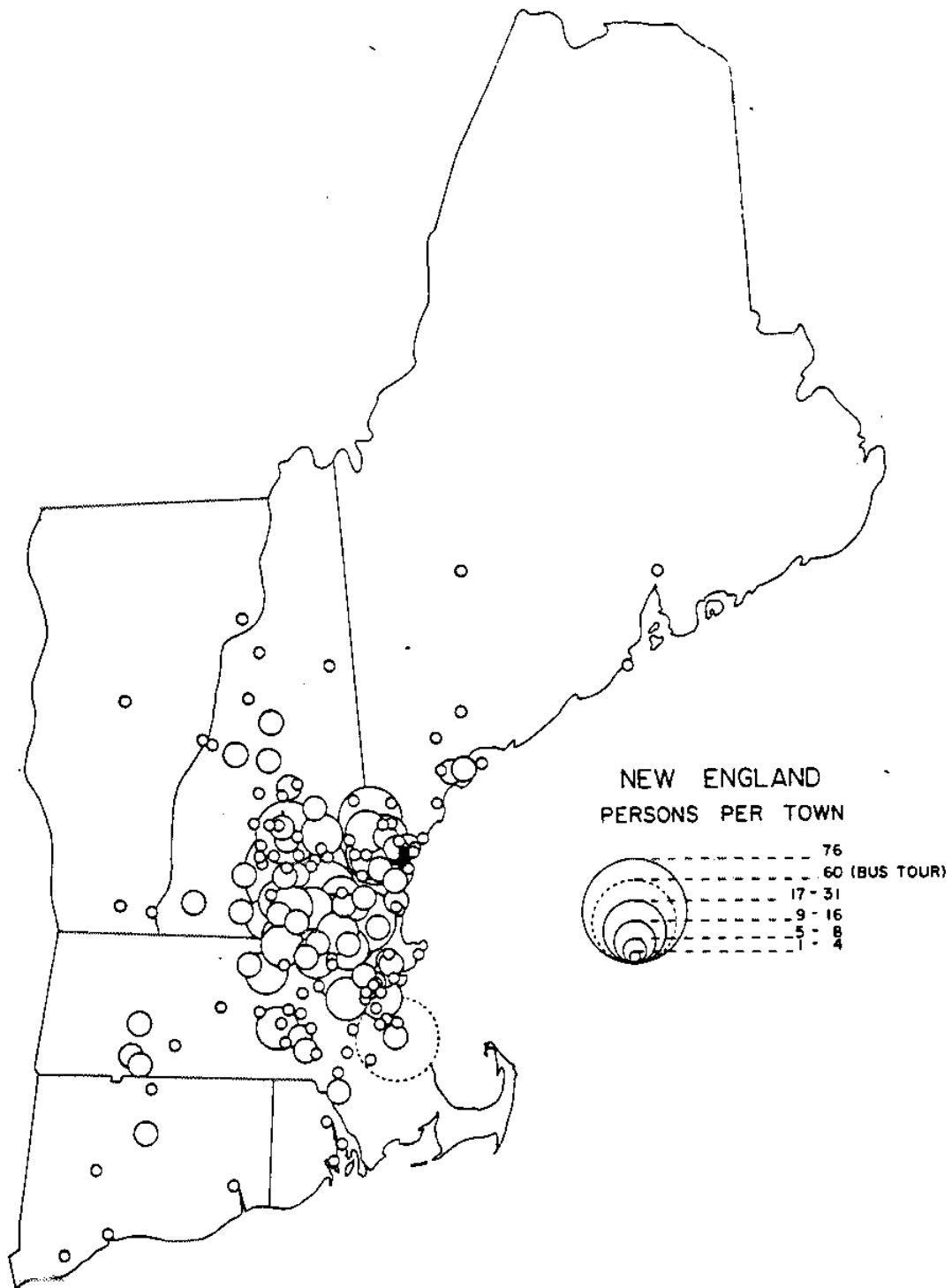


Figure 2

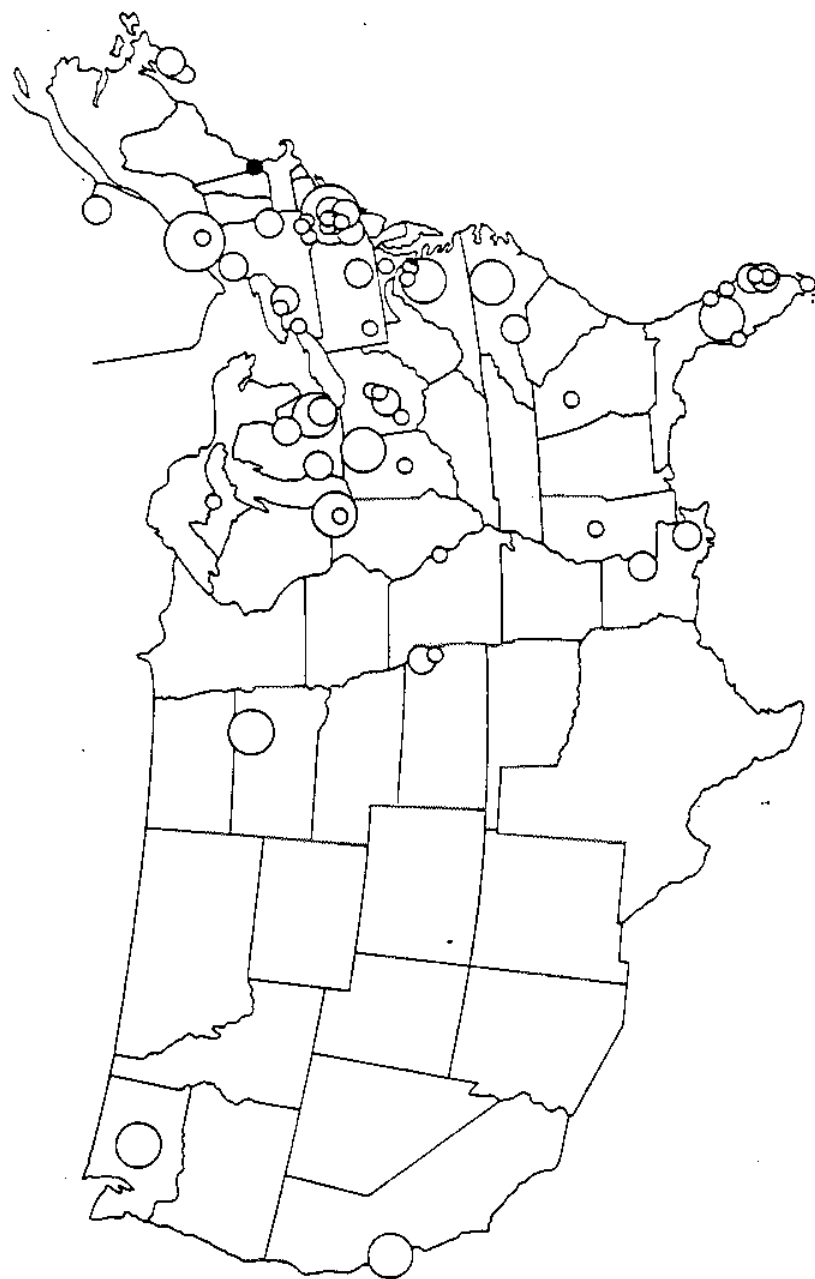


Figure 3  
UNITED STATES AND CANADA  
PERSONS PER TOWN



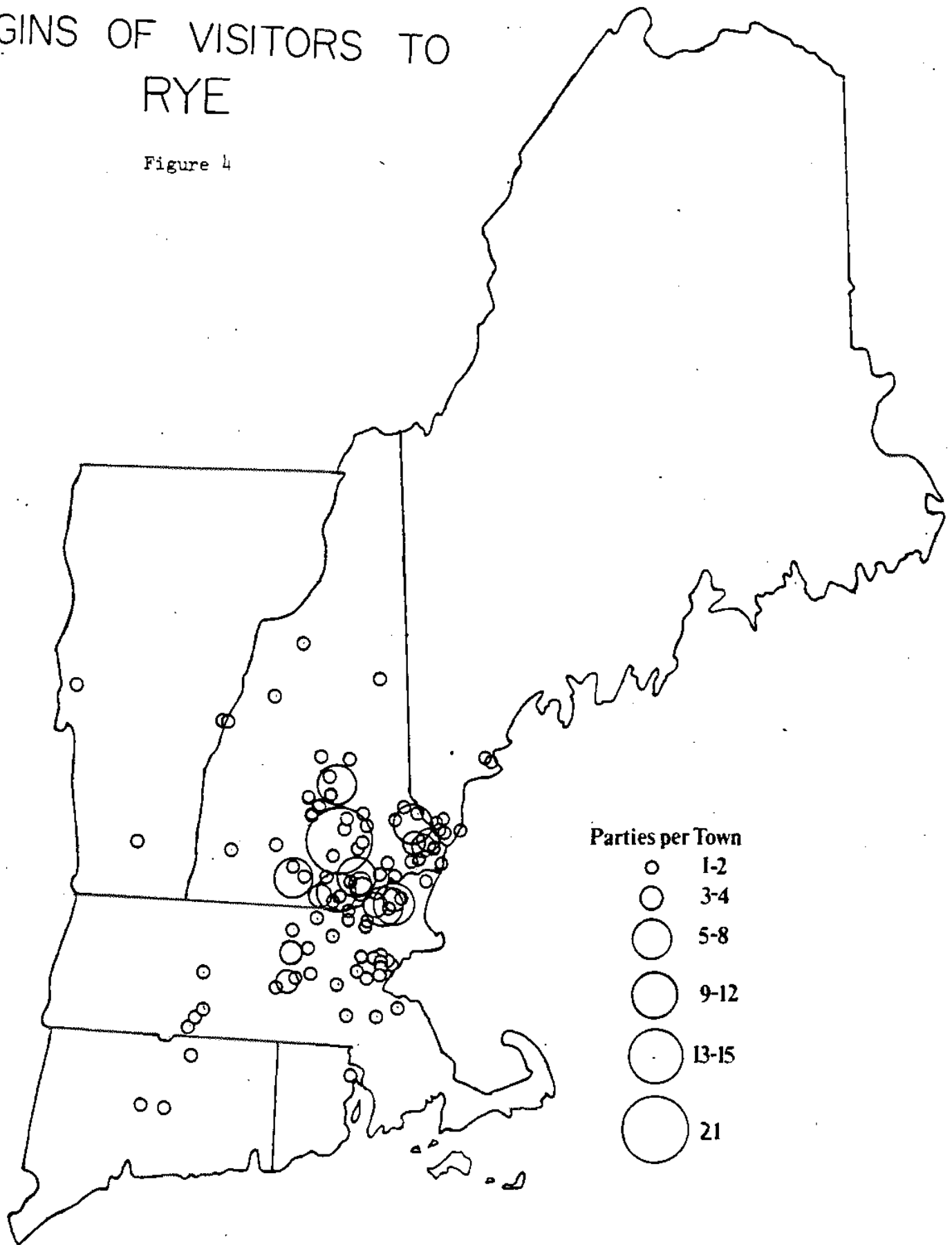
#### EUROPE

20 BONN, WEST GERMANY  
3 PARIS, FRANCE

TRIPS: PORTSMOUTH - RYE VISITOR SURVEY, JULY 1983

# ORIGINS OF VISITORS TO RYE

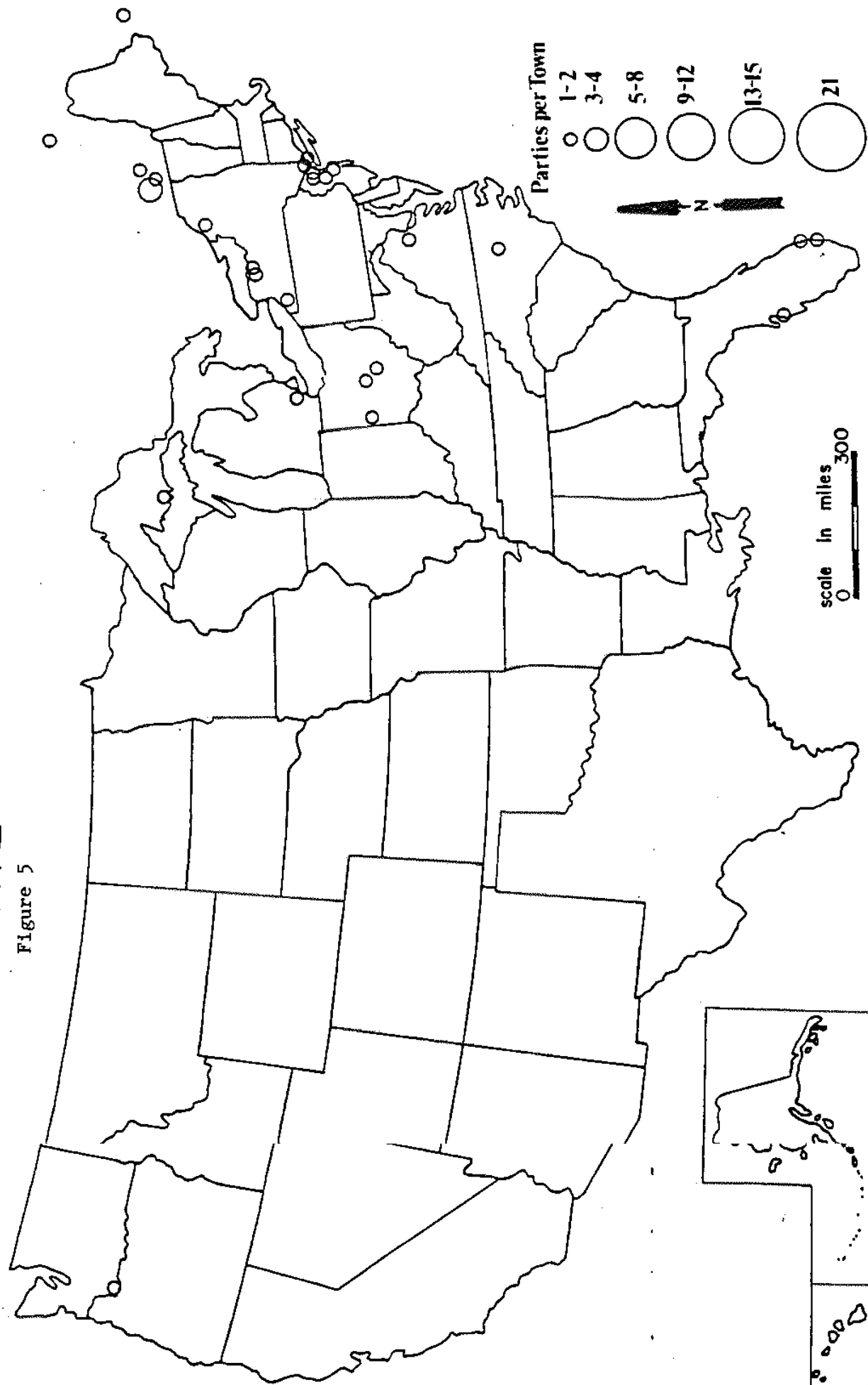
Figure 4



# ORIGINS OF VISITORS TO

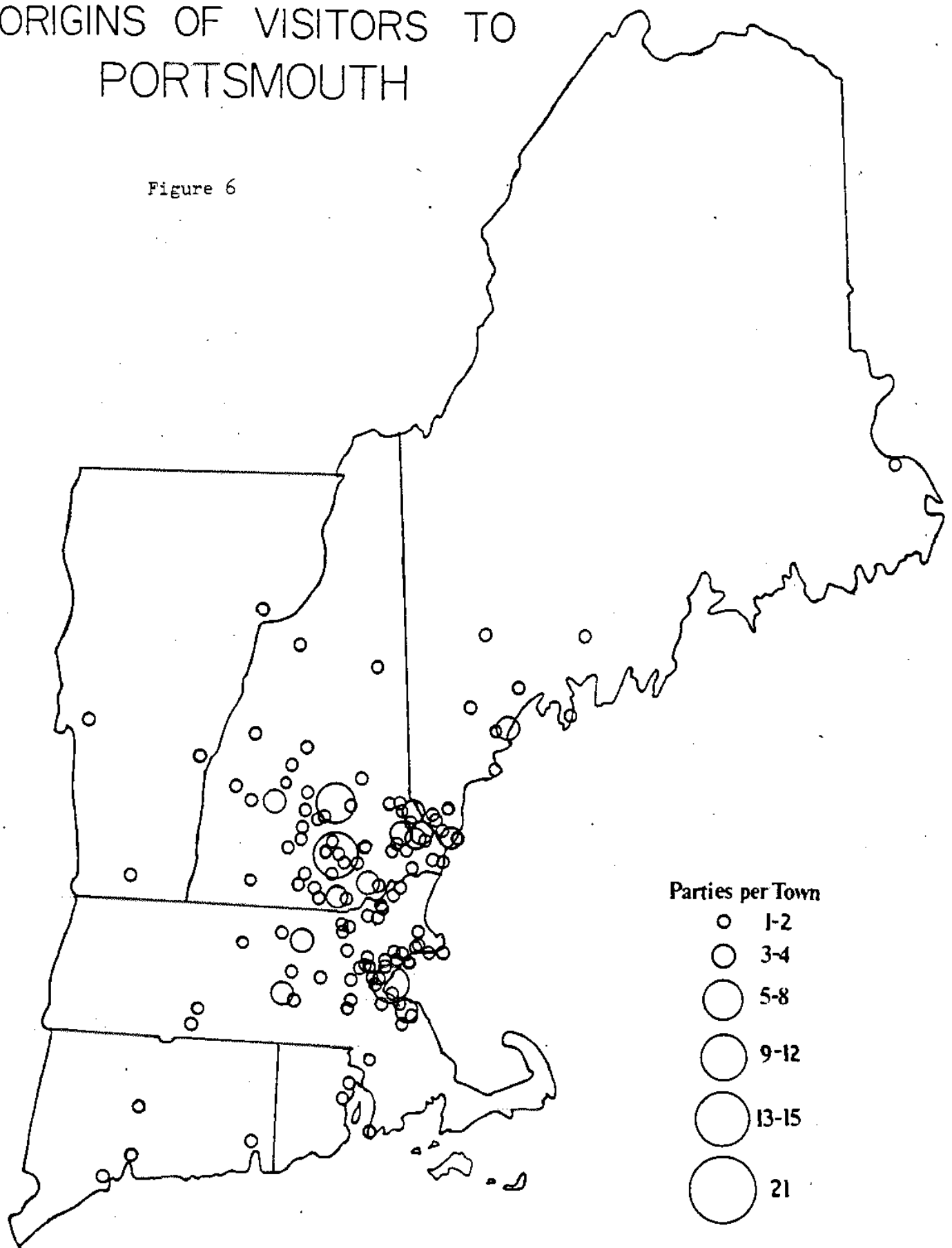
## RYE

Figure 5



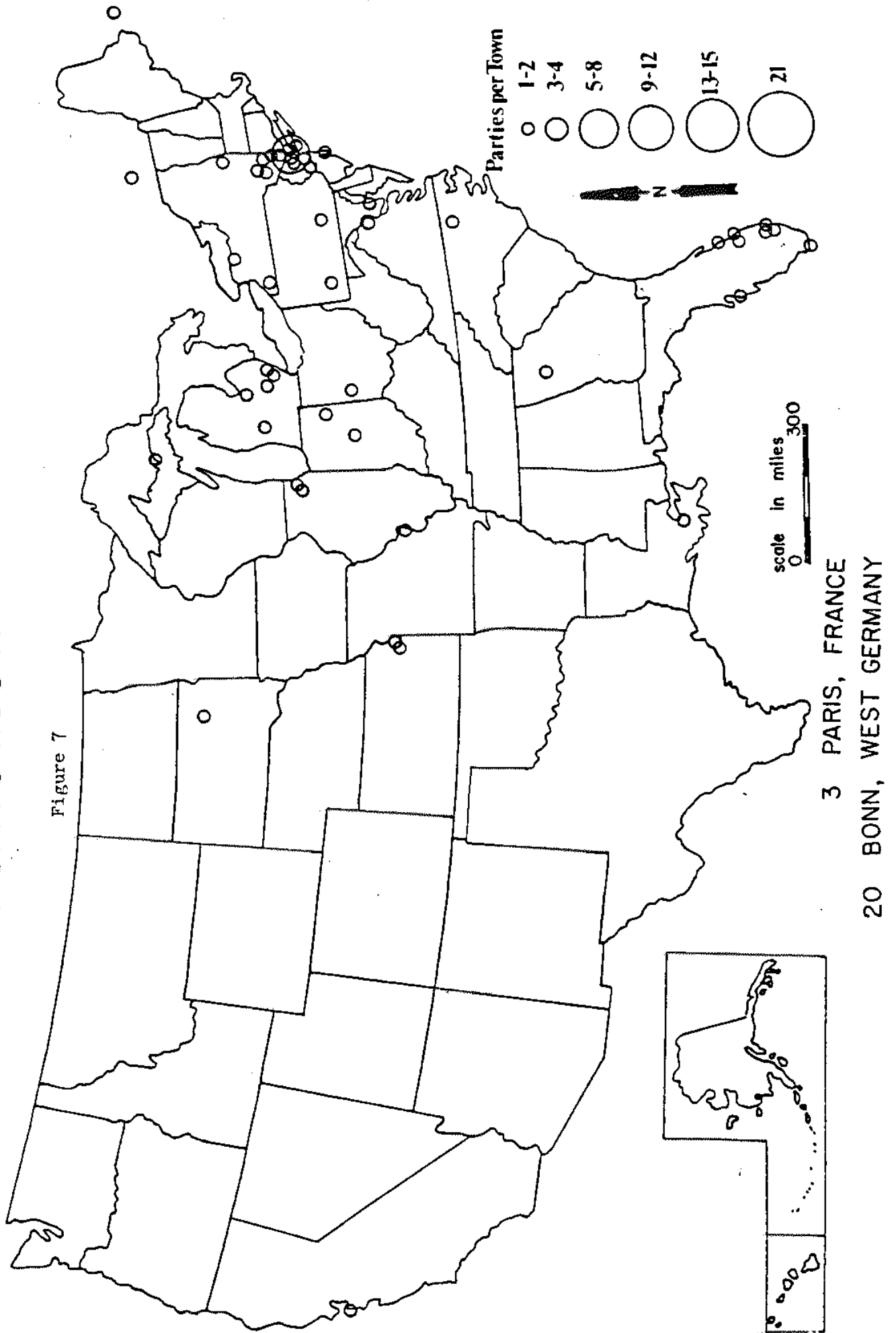
# ORIGINS OF VISITORS TO PORTSMOUTH

Figure 6



# ORIGINS OF VISITORS TO PORTSMOUTH

Figure 7



reflect a long-standing tradition among urban dwellers to utilize New England coastal zone communities as summer destinations. Throughout Rye, Hampton and numerous Maine and Massachusetts coastal zone communities, businesses exhibiting signs bearing the words "Nous Parlons Francais" serve as evidence of the area's popularity among "les Habitants."

Portsmouth, as may be expected of a large urban center offering a variety of cultural activities and visitor services, draws visitors from a greater geographical range than Rye.

Figures 6 and 7 indicate that Portsmouth draws substantial numbers of visitors from the Greater Boston area, coastal Maine and Greater New York City, in addition to the aforementioned New Hampshire and northeastern Massachusetts markets.

Comment. Based upon these findings, Hypothesis 1, which states that "..... Portsmouth and Rye will attract pleasure visitors from similar points of origin," cannot be supported. While the two communities share several market areas, a number of disparities exist. Rye exhibited a greater dependence (than Portsmouth) upon the I-93 corridor, Merrimack Valley and French Canadian Markets. Portsmouth appears to have attracted more visitors from Greater Boston, Greater New York City and generally more distant markets--with the exception of Quebec--than its smaller neighbor.

#### Interaction Between Portsmouth and Rye

Survey data indicate that the majority of respondents visited one, rather than both, of the communities comprising the study area. Approximately twenty (20.2) percent of parties interviewed at Rye indicated they also visited Portsmouth during the trip. Only 12.9 percent of those parties interviewed at Portsmouth reported visits to Rye. These figures are somewhat misleading, however, as they place too much importance upon the location of the respondents at the time of the interview.



A much better indicator of the degree of pleasure-functional inter-relationship (PFI)<sup>13</sup> between the communities can be developed by utilizing the following formula:

$$PFI_A = y/x_A$$

PFI = rate of pleasure-functional interrelationship

A = with community A (i.e., Portsmouth)

B = with community B (i.e., Rye)

$x_A$  = total parties who visited A  
(the sum of all parties interviewed at A who did not visit B, + all parties interviewed at A who also visited B, + all parties interviewed at B who also visited A)

y = total parties who visited both A and B  
(the sum of all parties interviewed at A who visited B, + all parties interviewed at B who visited A)

If one applies this formula to the empirical data, a substantial level of pleasure-functional interrelationship (i.e., greater than 20 percent) is indicated:

Rye → Portsmouth = 29.9 percent

Portsmouth → Rye = 26.7 percent

While no basis for comparison of these figures with other pairs of contiguous communities is available at this time, both percentages exceed the level presented in hypothesis two, a figure which must be regarded as a rather inflated measure of complementarity.<sup>14</sup> Therefore, hypothesis two, which states that "...a substantial level of pleasure-functional interrelationship (between Portsmouth and Rye) will be observed," is supported by the research.

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<sup>13</sup> Pleasure-functional interrelationship is defined as a tendency, on the part of pleasure visitors to one attraction or community, to visit one or more other specific attractions or communities.

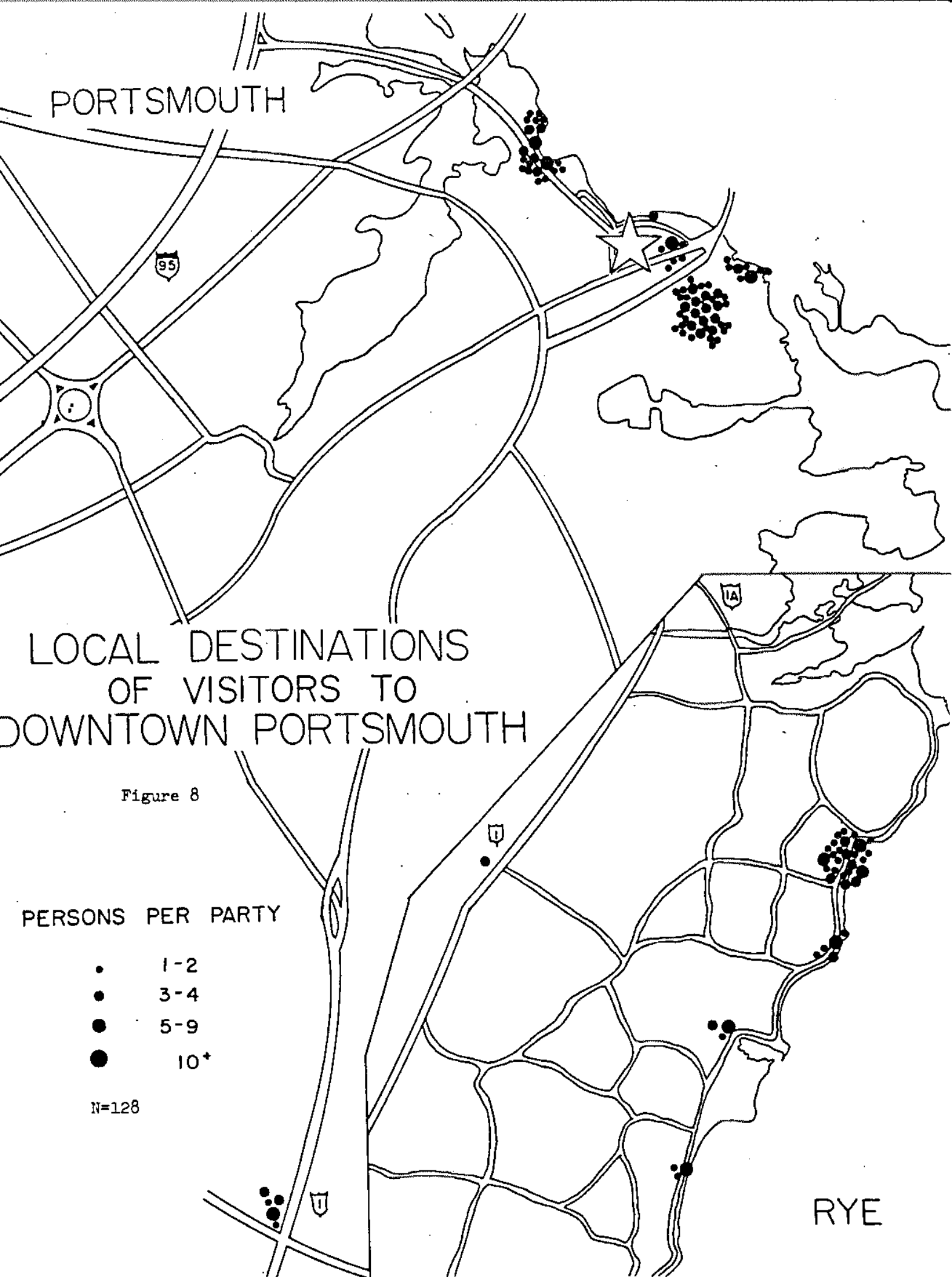
<sup>14</sup> Complementarity is defined as the presence of a mutual supply-and-demand relationship between a set of communities.

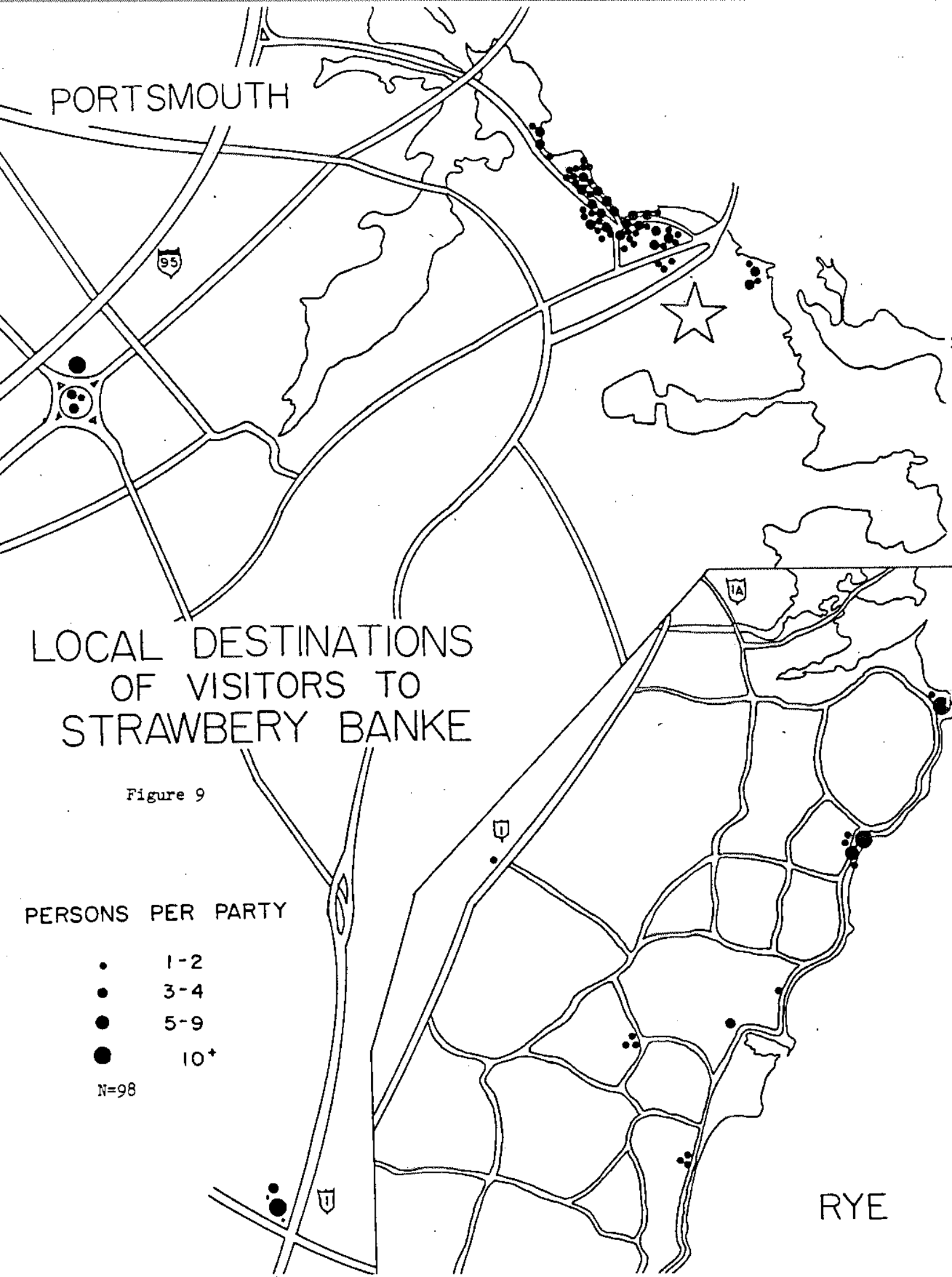
### Visitor Activity Patterns Within the Study Area

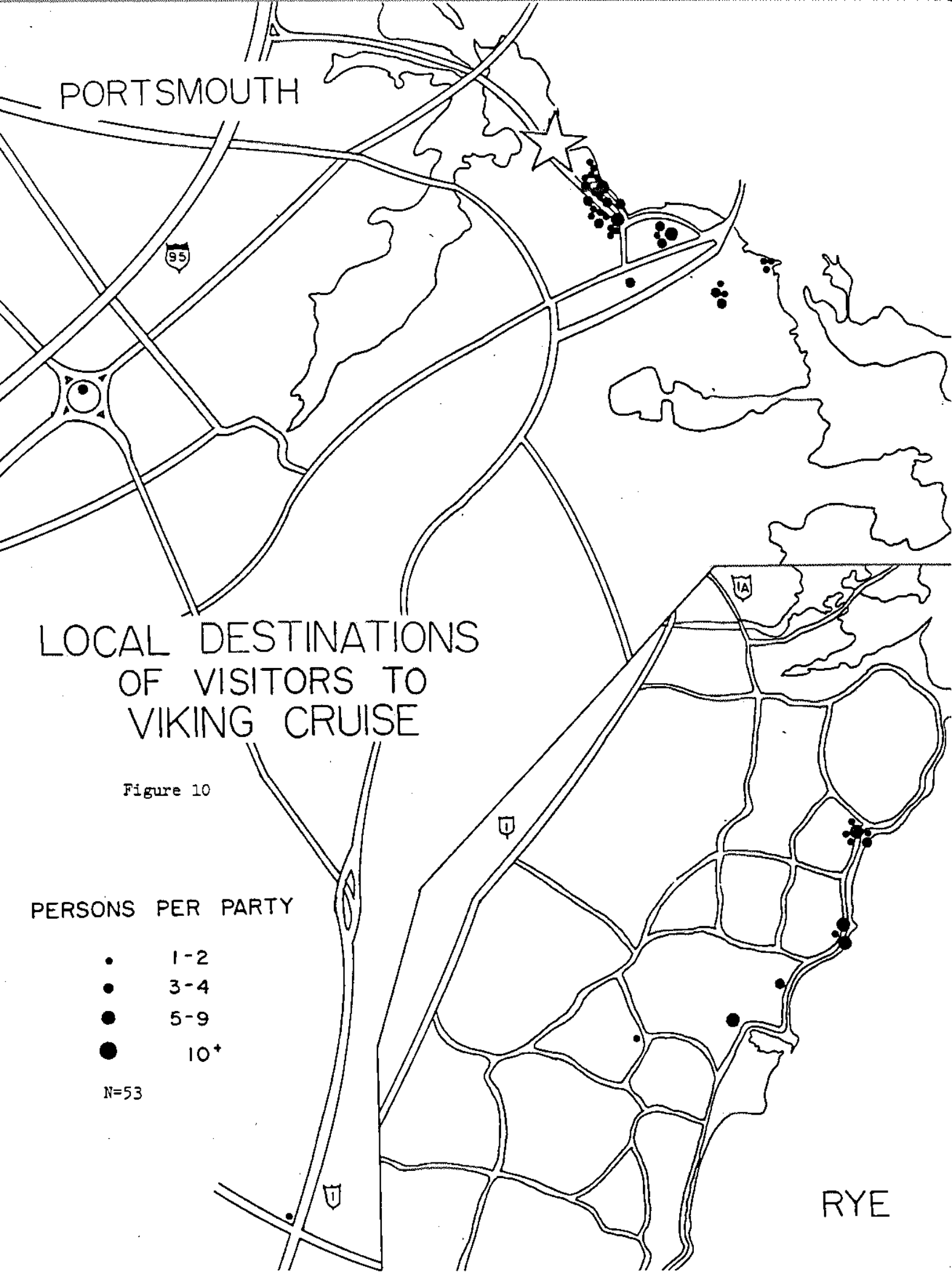
In an effort to determine the spatial dynamics of pleasure visitor activity within the study area, figures 8 through 15 have been developed. Having interviewed each of the 438 respondents to determine specific travel patterns within the study area, the responses have been represented in a series of base maps. Individual base maps were created for each of the major attractions within the study area. Each map depicts all locations within Portsmouth and/or Rye patronized by respondents who visited a specific primary attraction (e.g. Strawberry Banke). A proportional circle mapping technique has been utilized to indicate travel party sizes. The reader is advised to utilize figure 1 and its attached legend as an index of the locations represented on these maps. An analysis of the maps follows.

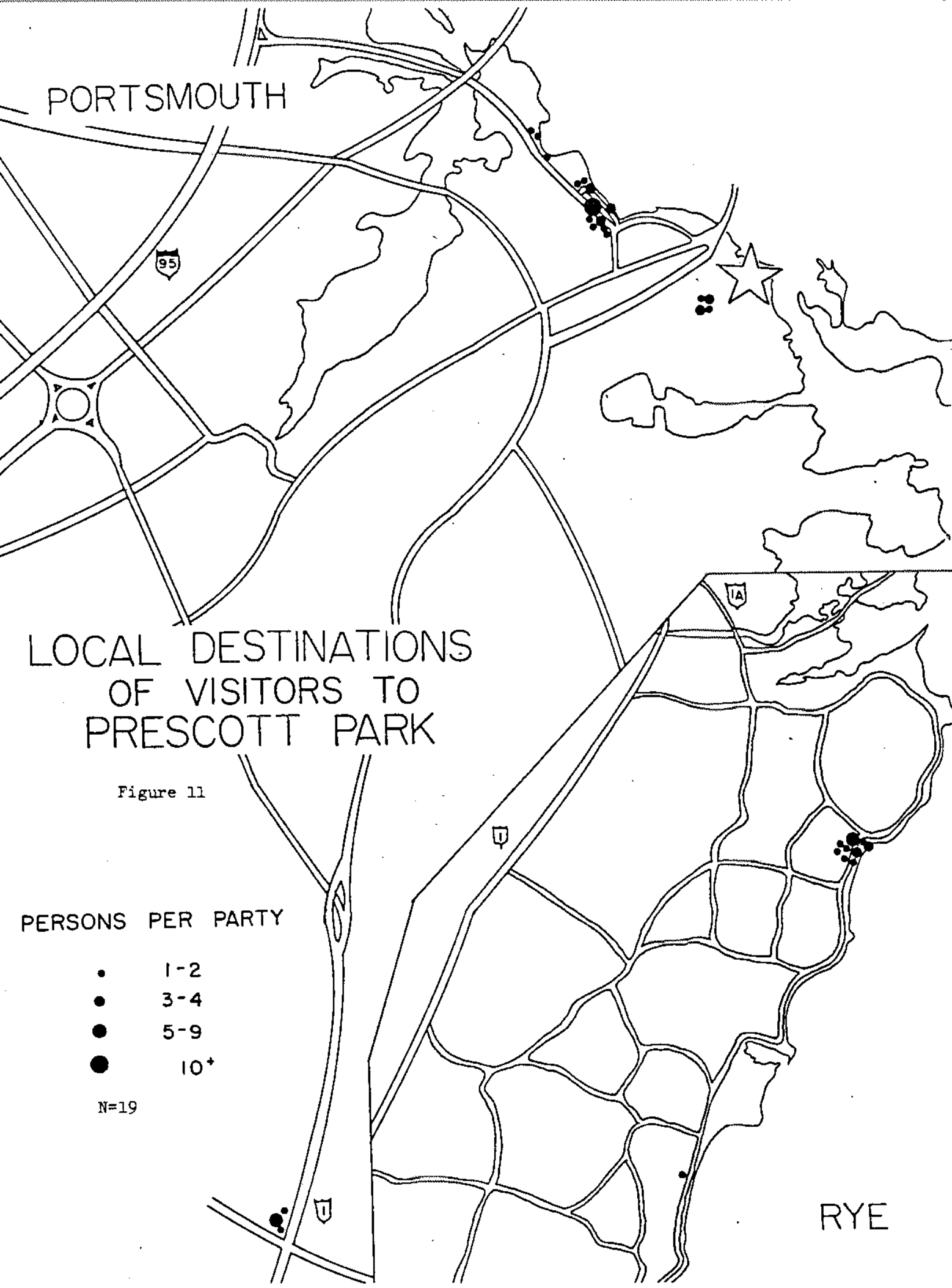
Portsmouth Attractions. Visitors to downtown Portsmouth exhibited a tendency to gravitate toward several attractions within the study area (see Figure 8), particularly Strawberry Banke and the Viking Cruises (28.1 and 16.4 percent, respectively). More than one-half (54.1 percent) of the respondents who visited Strawberry Banke (Figure 9), and 49.1 percent who boarded a Viking Cruise (Figure 10), in turn, reported visits to the downtown area. While these findings suggest that a mutual attraction exists among these three attractions, it is interesting to note that a small proportion of visitors to Strawberry Banke (4.1 percent) reported that they went on a Viking Cruise; the reverse is also in evidence (7.5 percent).

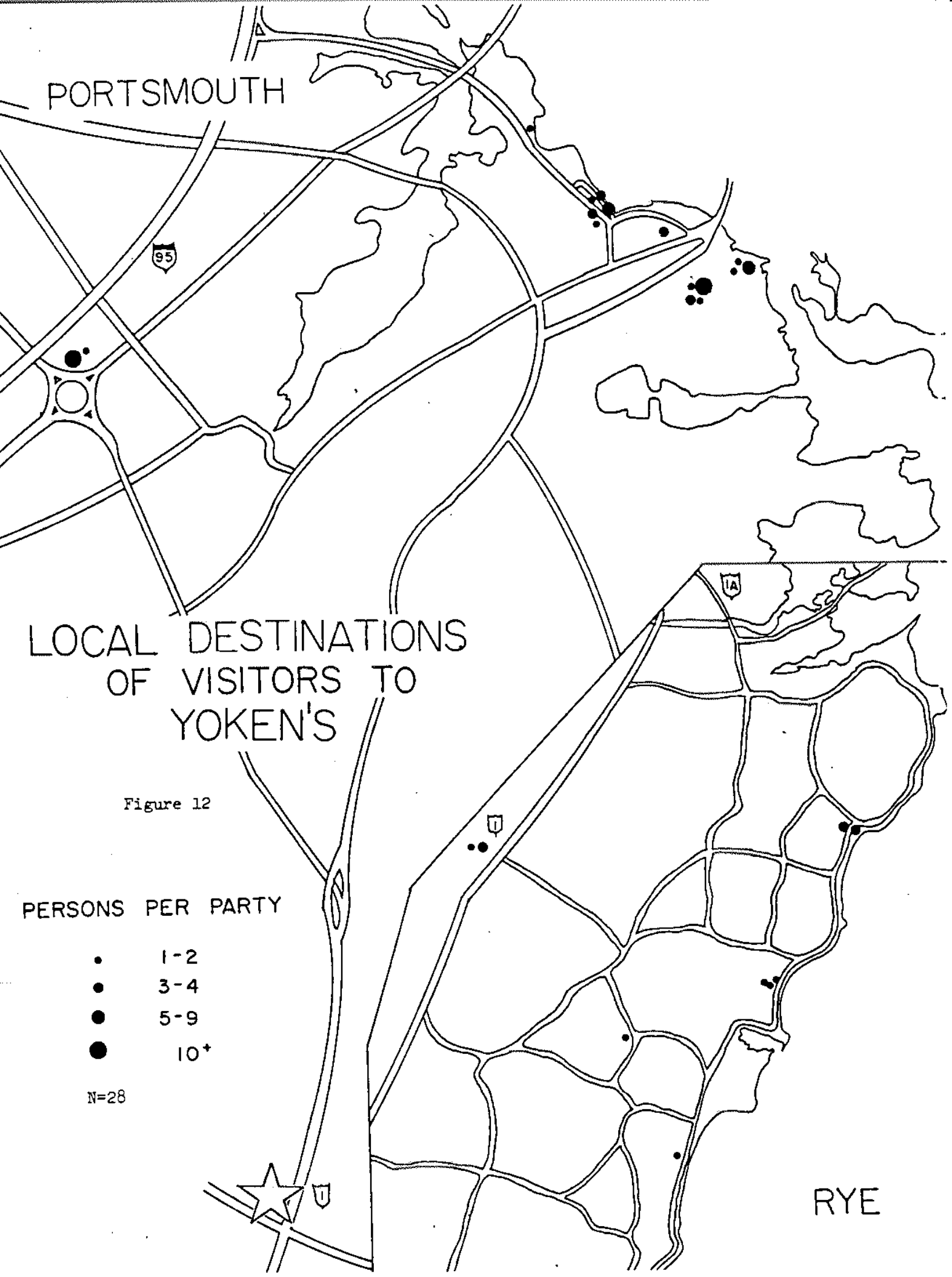
Two other Portsmouth attractions--Prescott Park and Yoken's Restaurant--exhibit patterns which merit further observation (Note: the reader is advised that very small samples have been obtained at both locations).



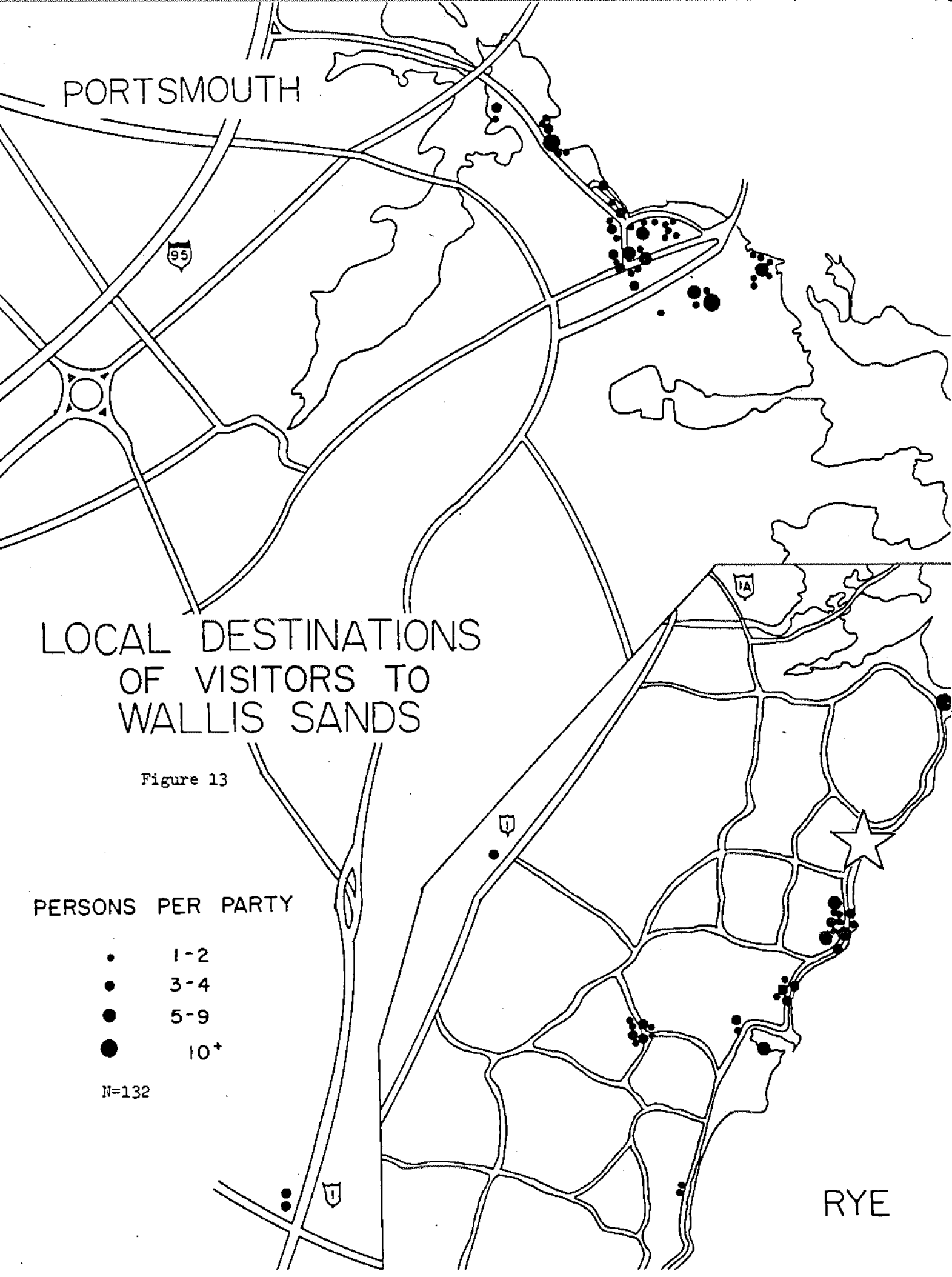


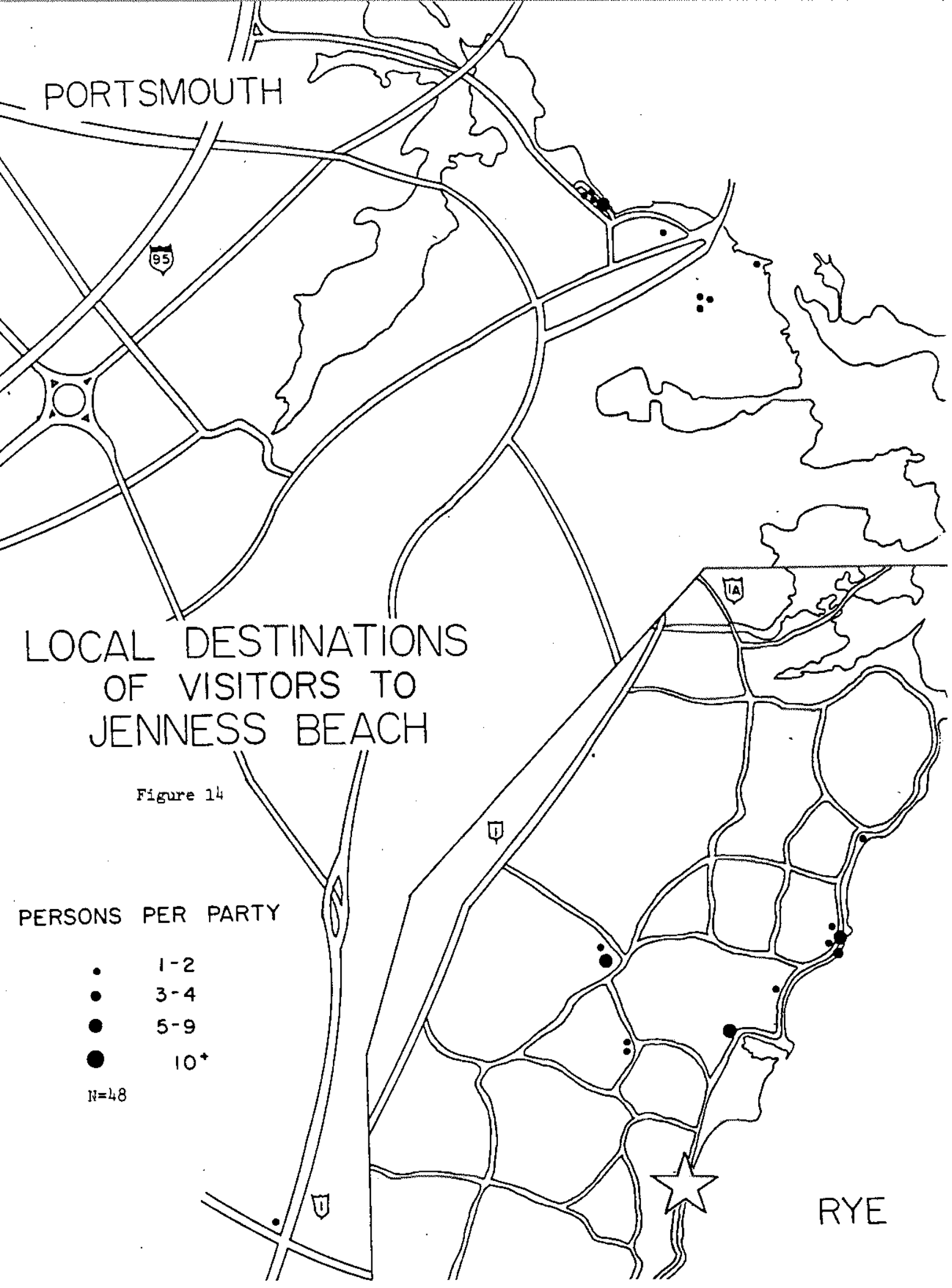


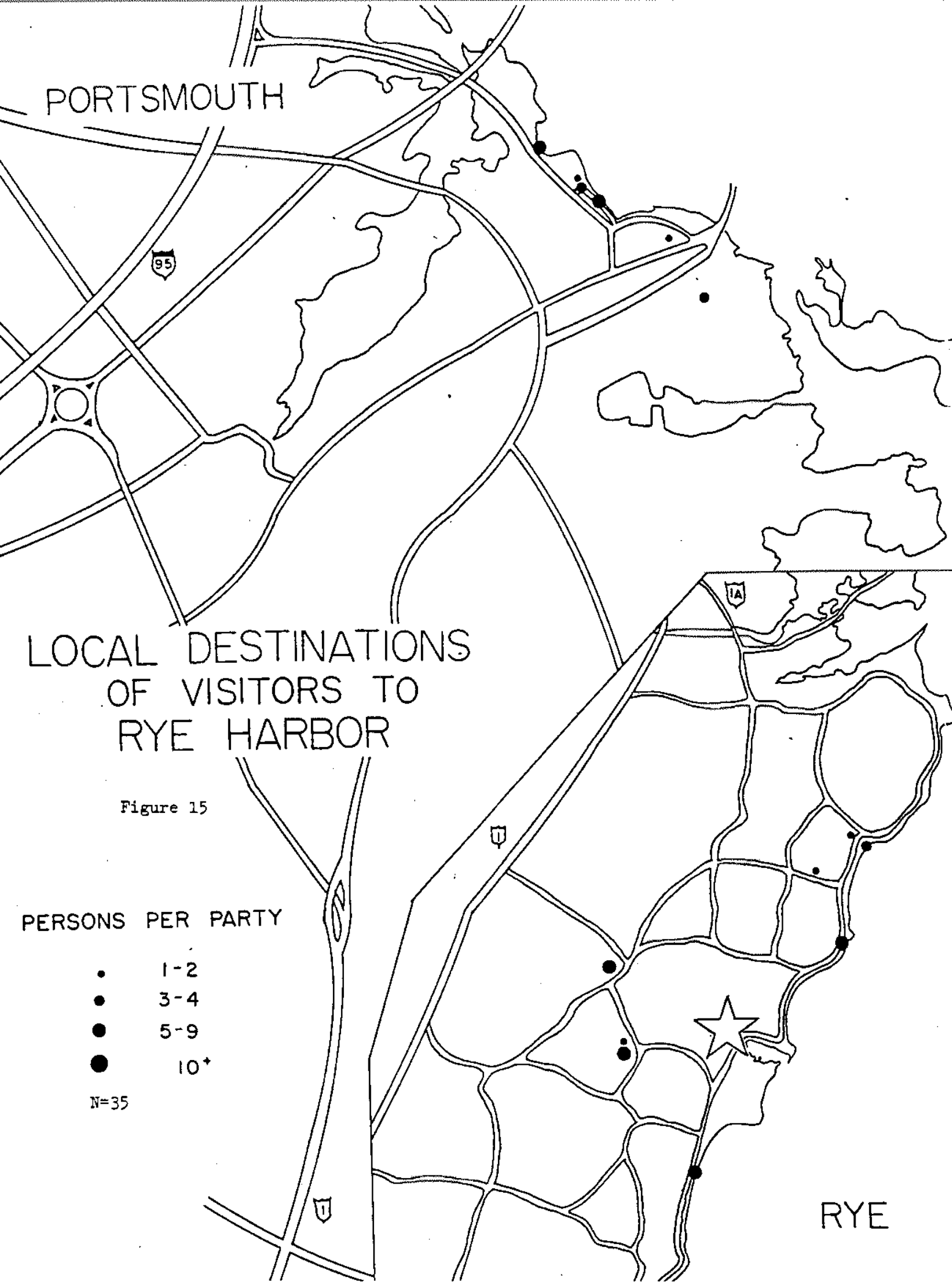












Respondents who reported visits to Prescott Park (Figure 11) exhibited a greater tendency to visit downtown Portsmouth (52.6 percent) or Wallis Sands (47.4 percent) than the more contiguous Strawberry Banke complex (21.1 percent). While the sample most certainly is too small to serve as the basis for promotion or planning decisions, these findings--in combination with patterns reported earlier--indicate that the variable "distance" is but one influence upon visitor activity patterns. It does not appear to be the primary influence, as was implied in Hypothesis 3.

Yoken's Restaurant, a Portsmouth landmark, has benefitted from an excellent advertising program. The management of Yoken's endeavors to further generate visitor travel within the region by displaying brochures of most of the area's attractions, lodgings, restaurants, shops and major events. Figure 12 displays the attractions visited by respondents who stopped at Yoken's. Clearly, these people did not limit their patronage to attractions, lodgings, stores, etc. situated adjacent to Yoken's; rather they visited attractions which are dispersed throughout the study area.

In summary, data have suggested the existence of a pleasure functional relationship between downtown Portsmouth and other attractions within the study area. However, visitors to Portsmouth clearly did not limit their patronage to attractions and services situated within close geographical proximity to one another.

Findings described above indicate that a number of variables must be incorporated into future models of pleasure visitor activity patterns within coastal zone communities. Among these are activity preferences (active vs. passive, participatory vs. spectator, etc.), temporal characteristics (long-term vs. short-term, daytime vs. nighttime), activity costs (price in dollars) and individual advertising styles (mass media vs. word-of-mouth vs. other).

The distance factor (relative geographic proximity) also should be embodied within further modeling efforts.

Rye Attractions. Wallis Sands State Park, situated south of the towns of Portsmouth and New Castle, is the most popular visitor destination situated within the town of Rye.<sup>15</sup> Figure 13 indicates that respondents who visited Wallis Sands were attracted to numerous facilities, services and attractions situated along Ocean Boulevard (Route 1A) at various distances from the park. These included restaurants, food stands, variety/gift shops as well as other state parks.

Among respondents who visited Wallis Sands, downtown Portsmouth was the most popular place to stop (18.9 percent). The existence of a pleasure-functional interrelationship is further suggested by the fact that 19.5 percent of visitors to downtown Portsmouth visited Wallis Sands.

Visits to Jenness Beach State Park and Rye Harbor State Park are represented cartographically in Figures 14 and 15. The figures do not suggest the existence of pleasure-functional interrelationships between these attractions and other study area destinations (Note: once again sample sizes are a limiting factor). The low incidence of visits to other attractions (see Figures 14 and 15) indicates that the majority of respondents selected Jenness Beach or Rye Harbor as their single destination within the study area. Nearly all the respondents who visited these two attractions reported that they arrived early in the morning and remained until evening, utilizing their automobiles mainly as storage facilities throughout their visits.

Comments. The cartographic analysis indicates that geographical proximity has been a consideration in visitors' activity patterns in numerous instances; however, exceptions to this hypothesized tendency were measured more frequently. Therefore, the data do not support the contention of Hypothesis 3 that "the majority of all pleasure visitor activity will tend to be clustered."

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<sup>15</sup> Calendar Attendance.

The research poses a number of questions about the impact of variables other than distance in determining visitor interaction patterns within or among resort communities. On the basis of observation within the Portsmouth-Rye study area, the researcher recommends that the following variables be incorporated in any future model-building efforts:

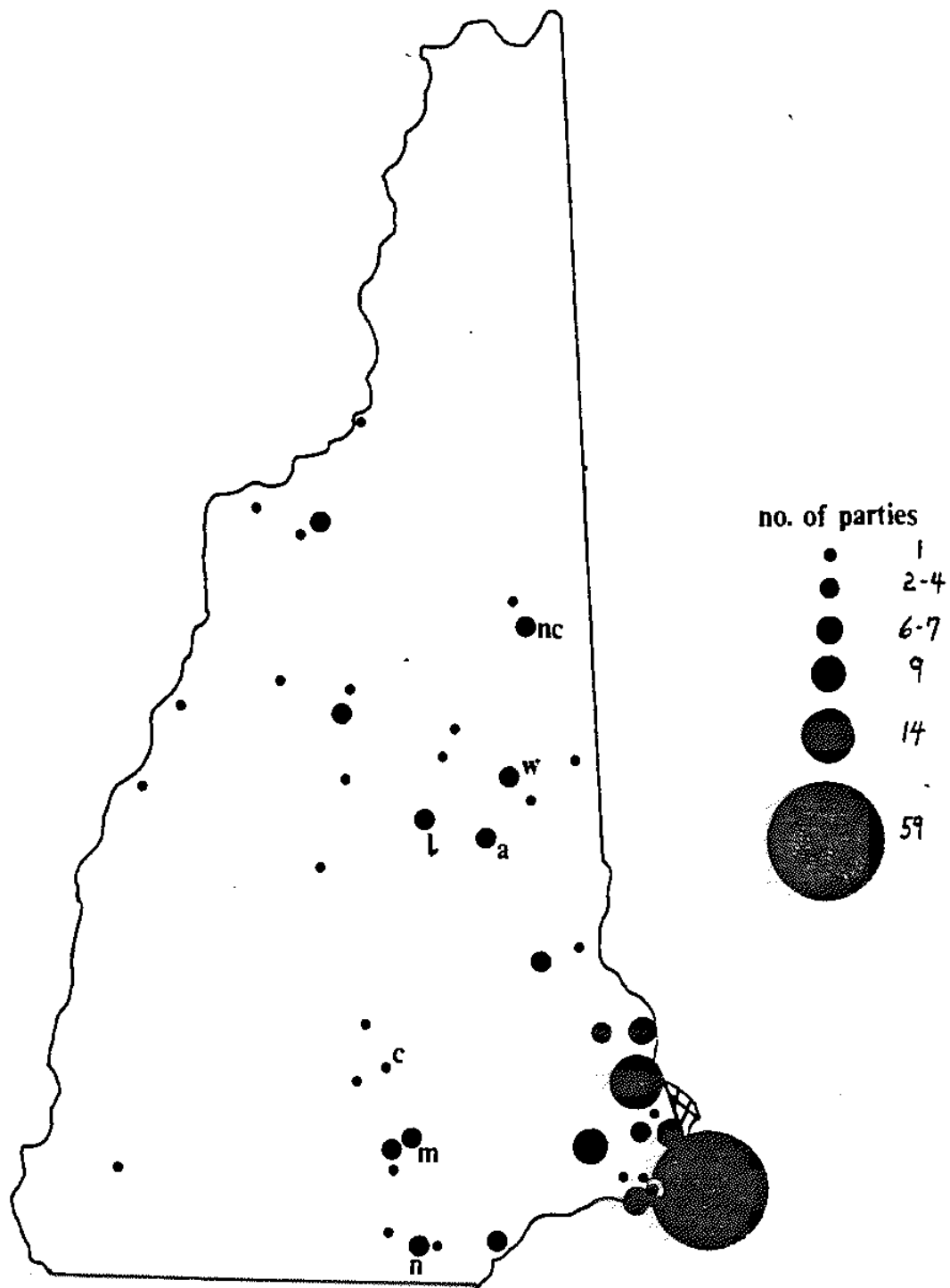
- local transportation network
- local topography
- backgrounds and activity preferences of visitors
- length of individual visits
- character and cost of local attractions
- advertising formula utilized by local attractions and businesses
- functional relationship among these attractions/businesses
- + distance

#### Travel to Destinations Situated Outside of the Study Area

More than one quarter (27.2 percent) of all respondents indicated that they visited New Hampshire destinations situated beyond the limits of the study area. Twenty-three (23.1) percent reported visits to destinations in other states or provinces. Figures 16 and 17 display those areas (other than places of permanent residence) which were destinations for visitors to the study area. The most popular instate destination among respondents was the Hampton-North Hampton area. Nearly eighteen (17.7) percent of respondents who visited Rye and 11.6 percent of those who visited Portsmouth spent a portion of their travel time in the Hampton-North Hampton area. The activities pursued most frequently by respondents visiting this area were swimming/sunbathing (32.2 percent) and lodging/camping (27.1 percent). Field research indicates that much of the interaction between Hampton/North Hampton and the study area was directed toward Rye's beaches and Portsmouth's downtown area. These mainly consisted of day trips from a cottage, hotel/motel or campground destination situated in the Hampton/North Hampton area.

# VISITS TO OTHER IN-STATE DESTINATIONS

Figure 16



• 2 Lake Winnepesaukee (unspec.)  
• 4 Wt. Mtn. National For. (unspec.)



The only other instate destination which warrants examination is Newington. A small percentage (1.8 percent) of all visitors to the study area reported visits to Newington; in every instance, their intention was to shop in one of the large malls.

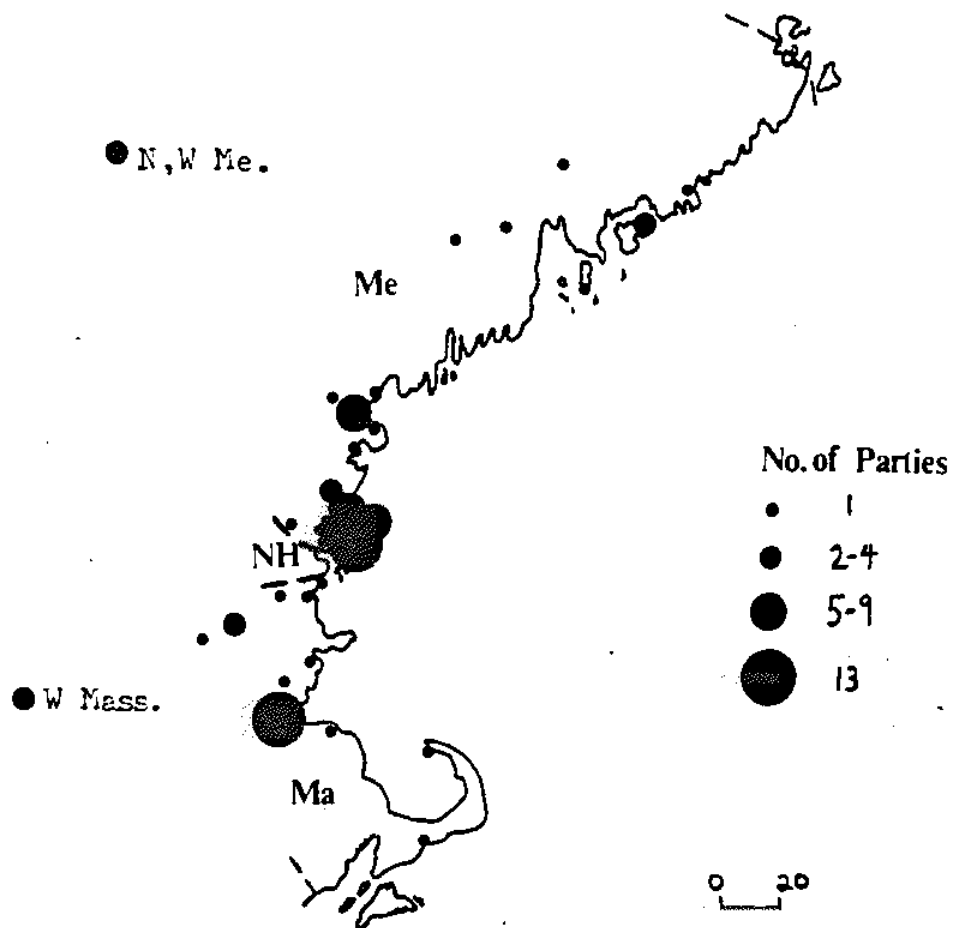
One phenomenon which merits consideration at this interval is the tendency of the majority of respondents to confine their instate visits to the coastal zone. Sixty-two (62.1) percent of all respondents reporting visits to other New Hampshire destinations interacted with communities situated within 10 miles of the littoral zone (see Figure 16).

Other states. Of the relatively small percentage (23.1) of respondents who visited destinations within other states, 67.3 percent visited only one additional state or province; 25.7 percent visited two; and, 6.9 percent visited three or more. Seventy (70.3) percent of respondents who visited other states (16.4 percent of the total sample) selected destinations in Maine. The other state which was popular among visitors to the study area was Massachusetts; 31.7 percent of persons who traveled out of state (7.3 percent of the total sample) visited Massachusetts destinations.

Visits to destinations situated along Maine's southern coast (Figure 17) were a more measurable occurrence among visitors to Portsmouth (15.1 percent of the total) than Rye (only 2.3 percent). One possible explanation of this is that greater complementarity exists between Portsmouth and Maine destinations. Most people who visited Maine reported that shopping and sightseeing were their primary motivations. These are visitor behaviors which we have observed to be predominant within Portsmouth as well. Therefore, it is reasonable to presume that Portsmouth and Maine shared a type of pleasure-functional relationship which was not shared by Rye. Certainly this is a phenomenon which warrants further examination.

# COASTAL ZONE DESTINATIONS OF VISITORS TO PORTSMOUTH-RYE

Figure 17



Once again, there was a measured tendency among respondents to visit communities situated within 10 miles of the Atlantic coast. Ninety-two (92.1) percent of all party visits to Maine and 71.4 percent of visits to Massachusetts exhibited this tendency (see Figure 17).

Comments. On the basis of the findings discussed above, hypothesis 4, which states that "a majority of respondents will engage in activity (outside of the study area) in destinations which are contiguous to the littoral zone," is supported. These findings indicate the presence of a strong coastal zone orientation among visitors to the study area. Whether this is the product of environmental, economic-functional, transportation or an (as-yet) undiscovered influence cannot be determined here.

#### Summary

The research has shown that the study area is primarily dependent upon contiguous areas to supply its pleasure visitors. Measured differences in the market regions of the two communities appear to reflect differences in the sizes of the two communities, as well as the nature of activities and services available within each.

Visitors to the study area do not necessarily visit one community at the exclusion of the other. While the majority of visitors do exhibit this tendency, substantial inter-community travel was exhibited.

Functional interrelationship among several pairs of attractions was indicated. However, evidence did not support the supposition that geographical contiguity was the sole, or even a primary influence upon these interrelationships. The research determined that an examination of several other variables warrants further study.

The cartographic analysis indicated a tendency among pleasure visitors to conduct their activities within, or adjacent to, the littoral zone.

The two communities comprising the study area must be regarded as touring-oriented visitor service centers. The vast majority of respondents indicated that they did not remain overnight within the study area. Therefore, most respondents' visits to Portsmouth and Rye consisted either of a) day trips engendered at places of permanent or seasonal residence, or b) brief stop-overs during "tours" of a portion of the coastal zone region.

Expenditure patterns exhibited within the two communities differed substantially. This difference is the product of the predominant pleasure functions offered by the respective communities. Portsmouth appears to attract sightseers and shoppers, while Rye primarily attracts pleasure visitors who prefer to engage in active and passive forms of outdoor recreation.

### Conclusions

In an effort to weigh the contributions of the research, let us re-examine its accomplishments vis-a-vis the major purposes outlined in the preface of this study:

1. Has the research obtained a representative sample of pleasure visitors to Portsmouth and Rye?

Clearly the survey has been conducted in a manner which provided a representative size sample for both communities (see "Methodology" section). Unfortunately, due to the absence of prior research within the study area, we are unable to document the validity of the results.

In lieu of this, the following is offered:

The sample certainly would be invalid if the intention of the research was to a) provide an accounting of the totals or percentages of persons visiting various attractions within the study area, b) provide aggregate pleasure visitor counts for Portsmouth and Rye, or c) portray visitor activity patterns within the study area during the entire Summer 1983 period.

Had any of these worthy topics been the desired product of this research, a different approach to sampling (or inventorying) pleasure visitors would have been necessitated. The traditional entrance-exit method of sampling would have been a preferable approach in all three instances.

Rather, the purpose of the research has been to determine interaction patterns exhibited by pleasure visitors within the study area. The primary goal was to determine the geographical extent of visitor activity within the study area as well as the general distribution of activity into surrounding areas. The sampling requirements for such an endeavor include: a) a requisite number of cooperative respondents, b) assurance that no sampling duplication will occur, and c) a near-equal rate of sampling at data collection points situated adjacent to a set of carefully-determined primary attractions (i.e., places within the study area which are generally popular among pleasure visitors). The sample fulfills each of these criteria.

2) Has a research methodology been developed which is both affordable and easily utilized by local officials?

a. Affordability. As stated in the "Methodology" section, data were collected during 120 person-hours of field research following an intensive three-hour training period. A community wishing to conduct a similar study should endeavor to recruit field workers from local geriatrics, members of service organizations, as well as young people on vacation from schools. A work force thus comprised has three distinct advantages: awareness of community dynamics, pride in the locale, and willingness to work for a low wage.

b. Utility. This project has been designed to utilize nominal and ordinal data. By design, the research has employed elemental methods of cartographic and statistical analysis. These are methods which can be imparted to local officials with a few hours of instruction.

The processes of tabulating and analyzing data can be facilitated by means of a micro-computer. Therefore, an industrious local official who has access to a group of local field workers and a computer can duplicate the entire research methodology for a resort community or a recreation property at a cost of approximately two thousand dollars.

3,4) Has the spatial approach yielded information which has local utility? What is the potential utility of more sophisticated geographical models?

The research methodology used in this study employs a spatial approach to obtain information about pleasure visitor's activities within a portion of the coastal zone. It should be regarded as a valuable addition to local planning and promotional endeavors, for it can provide an overall picture of the community's visitor market area as well as the activity patterns exhibited by visitors to the community.

It has been noted that the research employs very basic geographical methodology. With the availability of a substantially larger data base, the following sophisticated spatial techniques may be applied to the research:

a) Time Series Analysis and Space Time Factorial Ecology.

These techniques examine the portions (areas) of a community or region which are utilized during specific periods of a day, week, or year. They allow a researcher to observe and record precise social and economic activities within specific space and time frameworks. This kind of research

requires very detailed (therefore, costly) data. It is recommended that these techniques be employed within resort communities where lengthy visits and a dependence upon local services facilitate this type of research.

- b) Nearest-Neighbor Analysis. This is an effort to examine whether specific activities or facilities tend to cluster or be dispersed throughout the area. Its greatest value is that it indicates whether a pattern is merely the product of random happenstance. Therefore, it is most useful during preliminary stages of geographical research efforts.
- c) Sequent Occupance. Communities can repeat the Portsmouth-Rye research methodology periodically, applying Derwent Whittlesey's 1929 study of rural landscape dynamics. By examining visitor market and activity patterns within the study area every five years, one may evaluate the impact of the economy, changes in the suprastructure and infrastructure and other factors upon the travel-for-pleasure phenomenon within the area.